NewsRelease

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TENTH ANNIVERSARY

HALOE still going strong after a decade

A NASA Langley Research Center space-borne instrument is celebrating its tenth anniversary after nearly a decade of measurements that are improving the understanding of ozone destruction and climate change.

The Halogen Occultation Experiment or HALOE instrument is in its tenth year in orbit aboard the Upper Atmosphere Research Satellite (UARS) with flawless operation, which started in October 1991 after UARS was launched on September 12. HALOE researchers along with other UARS scientists are celebrating the anniversary and their latest results at a UARS science meeting in Greenbelt, Maryland.

"HALOE has been operating as well as it did its first month. We've met our original science goals, but some are continuing goals that we've been able to achieve because HALOE has been operating for so long," said Ellis Remsberg, the HALOE project scientist. NASA Langley engineers built HALOE for 18 months of operation with 36 months considered optimal, but HALOE continues atmospheric measurements today.

One major goal for HALOE, which measures ozone and other trace gases in the middle atmosphere, was to monitor the effects of chlorofluorocarbons or CFCs on ozone destruction. HALOE confirmed the idea that byproducts of CFCs destroy ozone and is the only space-based instrument that monitored the slowdown and leveling off of chlorine, an ozone-depleting chemical, in the middle atmosphere due to reduced CFC production. This achievement was a scientific breakthrough.

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"We saw chlorine levels reach a maximum in 1997, but thereafter it is changing in a way that we don't yet understand," said Jim Russell, HALOE principal investigator at Hampton University.

HALOE continues to monitor changes in temperature, chlorine and fluorine, another product of CFCs, to examine atmospheric response to Montreal Protocol, an international treaty designed to curb CFC production.

HALOE also adds to the understanding of ozone depletion in polar regions during the winter and spring and climate change studies. A recent HALOE finding, released earlier this year, discovered that water vapor, a greenhouse gas, is increasing twice as fast as expected in the middle atmosphere.

Russell originally conceived HALOE to study the middle atmosphere to determine the global effects of human-produced chlorine on the ozone layer. But as knowledge of trends in trace gases like water vapor grew in importance, HALOE's goals and scope of measurements changed to meet that challenge.

"We have been expanding HALOE's measurements into the troposphere. This is very important for climate change studies," said Russell.

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